1.   (CURRENTLY AMENDED)   A file server performing file transaction operations in response to file transaction requests by the clients and including a state machine logging mechanism, comprising:

a storage sub-system, and

a control/processing sub-system including

a file system processor performing file transaction operations in response to client requests and controlling file storage operations of the storage sub-system, and

a state machine logging mechanism operating concurrently and cooperative with the file system processor, including

a state machine log generator for extracting sequential state machine information defining ~~at least one~~a corresponding sequence of state machines during an execution of an operation, the ~~at least one~~sequence of state machines representing ~~a current~~sequential states of execution of a file transaction wherein a state machine is comprised of state information including control and data values representing a state of operation of the control/processing sub-system ~~at a given time~~during a corresponding step in the execution of the file transaction, wherein

the control/processing sub-system is a state machine system defined during the execution of a step in the execution of an operation by ~~at least one~~a sequential state machine defined by a state of operation of the state machine system during ~~a~~the step in the execution of the operation, and wherein

a file transaction operation is represented by ~~at least one~~a sequence of ~~sequential~~ state machines wherein each state machine is defined by data and control values residing in the state machine system during existence of a state machine of the sequence, and

a state machine log for storing the state machine information, wherein the state machine log generator is responsive to the restoration of operation of the file server after a failure of file server operations for reading the state machine information from the state machine log and restoring the state of execution of a file transaction.

2. (PREVIOUSLY AMENDED)   The file server of claim 1, wherein the state machine logging mechanism further comprises:

a state machine log mirroring mechanism that is functionally integral with the state machine log and that operates concurrently and in parallel with the state machine log and that is located separately from the control/processing sub-system and communicating with the state machine log generator for receiving and storing mirror copies of the state machine information, wherein the state machine log mirroring mechanism is responsive to the restoration of operation of the file server after a failure of file server operations for reading the state machine information from the state machine log mirroring mechanism and restoring the state of execution of a file transaction.

3.   (CURRENTLY AMENDED)   A file server performing file transaction operations in response to file transaction requests by the clients and including a state machine logging mechanism, comprising:

a storage sub-system, and

first and second control/processing sub-systems operating concurrently and in parallel, each including a file system processor performing file transaction operations in response to client requests directed to the first and second control/processing sub-systems and controlling file storage operations of the storage sub-system, and

a state machine logging mechanism operating concurrently and cooperatively with the file system processor, including a state machine log generator for extracting state machine information defining at least one a sequence of state machines during an execution of an operation, the at least one each state machine representing a current state of execution of a step in the execution of a file transaction ofby the corresponding control/processing sub-system wherein a state machine is comprised of state information including control and data values representing a state of operation of the control/processing sub-system at a given timeduring a corresponding step in the execution of a file transaction, wherein

each control/processing sub-system is a state machine system defined during the execution of an operation by at least one sequentiala sequence of state machines defined by a states of operation of the state machine system during a corresponding steps in the execution of the operation, and wherein

a file transaction operation is represented by at least one sequential a sequence of state machines wherein each state machine is defined by data and control

values residing in the state machine system during existence of state machine of the sequence, and

a state machine log for storing the state machine information of the corresponding control/processing sub-system, wherein the state machine log generator is responsive to the restoration of operation of the file server after a failure of the corresponding control/processing sub-system for reading the state machine information from the corresponding state machine log and restoring the state of execution of a file transaction of the corresponding control/processing sub-system.

4. (PREVIOUSLY AMENDED) The file server of claim 3, wherein each control/processing sub-system further comprises:

a state machine log mirroring mechanism that is functionally integral with the state machine log and that operates concurrently and in parallel with the state machine log and that is located separately from the state machine log mechanism and that is communicating with the state machine log generator of the other control/processing sub-system for receiving and storing copies of the state machine information of the other control/processing sub-system, wherein the state machine log mirroring mechanism is responsive to the restoration of operation of the other control/processing sub-system after a failure of the other control/processing sub-system for reading the state machine information from the state machine log mirroring mechanism to the other control/processing sub-system and restoring the state of execution of a file transaction of the other control/processing sub-system. of execution of a file transaction of the other control/processing sub-system.

5. (CURRENTLY AMENDED) A system resource performing system resource operations in response to requests by the clients and including a state machine logging mechanism, comprising:

a system resource-sub-system, and

a control/processing sub-system including a resource control processor performing system resource operations in response to client requests and controlling operations of the system resource sub-system, and

a state machine logging mechanism operating concurrently and cooperatively with the control/processing sub-system, including a state machine log generator for extracting state machine information defining at least onea sequence of state machines during an execution of an operation, the at least oneeach state machine

representing a current state of execution of a corresponding step in the execution of a

system resource operation wherein a state machine is comprised of state information

including control and data values representing a state of operation of the

control/processing sub-system at a given time during a corresponding step in the

execution in the system resource operation, wherein

the control/processing sub-system is a state machine system defined

during the execution of an operation by at least one sequential a sequence of state

machines defined by a corresponding states of operation of the state machine system

during a corresponding steps in the execution of the operation, and wherein

a resource operation is represented by at least one sequential a sequence

of state machines wherein each state machine is defined by data and control values

residing in the state machine system during existence of a state machine of the

sequence, and

a state machine log for storing the state machine information, wherein the

state machine log generator is responsive to the restoration of operation of the system

resource after a failure of system resource operations for reading the state machine

information from the state machine log and restoring the state of execution of a system

resource operation.

6. (PREVIOUSLY AMENDED) The system resource of claim 5, wherein the

state machine logging mechanism further comprises:

a state machine log mirroring mechanism that is functionally integral with

the state machine log and that operates concurrently and in parallel with the state

machine log and that is located separately from the control/processing sub-system and

communicating with the state machine log generator for receiving and storing mirror

copies of the state machine information, wherein the state machine log mirroring

mechanism is responsive to the restoration of operation of the system resource after

a failure of system resource operations for reading the mirror copies of the state

machine information from the state machine log mirroring mechanism and restoring the

state of execution of a system resource operation.

7. (CURRENTLY AMENDED) A system resource performing system resource

operations in response to system resource requests by the clients and including a state

machine logging mechanism, comprising:

a system resource sub-system, and

first and second control/processing sub-systems operating concurrently and in parallel, each including a system processor performing system resource operations in response to client requests directed to the first and second control/processing sub-systems and controlling operations of the system resource sub-system, and

a state machine logging mechanism operating concurrently and cooperatively with the control/processing sub-system, including a state machine log generator for extracting state machine information defining ~~at least one~~ a sequence of state machine~~s~~ during an execution of an operation, ~~the at least one~~each state machine representing a ~~current~~ state of execution of a corresponding step in the exection of a system resource operation of the corresponding control/processing sub-system wherein a state machine is comprised of state information including control and data values representing a state of operation of the control/processing sub-system ~~at a given time~~during the corresponding step in the execution of the system resource operation, wherein

each control/processing sub-system is a state machine system defined during the execution of an operation by ~~at least one sequential~~a sequence of state machine~~s~~ defined by a state of operation of the state machine system during a step in the execution ~~fo~~of the operation, and wherein

a system resource operation is represented by ~~at least one sequential~~ a sequence of state machine~~s~~ wherein each state machine is defined by data and control values residing in the state machine system during existence of a state machine of the sequence of state machines, and

a state machine log for storing the state machine information of the corresponding control/processing sub-system, wherein the state machine log generator is responsive to the restoration of operation of the system resource after a failure of the corresponding control/processing sub-system for reading the state machine information from the corresponding state machine log and restoring the state of execution of a system resource operation of the corresponding control/processing sub-system.

8. (PREVIOUSLY AMENDED) The system resource of claim 7, wherein each control/processing sub-system further comprises:

a state machine log mirroring mechanism that is functionally integral with the state machine log and that concurrently and in parallel with the state machine log

and that is located separately from the state machine log mechanism and that is communicating with the state machine log generator of the other control/processing sub-system for receiving and storing mirror copies of the state machine information of the other control/processing sub-system, wherein the state machine log mirroring mechanism is responsive to the restoration of operation of the other control/processing sub-system after a failure of the other control/processing sub-system for reading the mirror copies of the state machine information from the state machine log mirroring mechanism to the other control/processing sub-system and restoring the state of execution of a system resource operation of the other control/processing sub-system.

9. (CURRENTLY AMENDED) A state machine logging mechanism for use in a system resource performing system resource operations in response to requests by the clients, the system resource including a system resource sub-system and a control/processing sub-system including a resource control processor performing system resource operations in response to client requests and controlling operations of the system resource sub-system, the state machine logging mechanism comprising:

a state machine log generator operating concurrently and cooperatively with the control/processing sub-system for extracting state machine information defining ~~at least one~~a sequence of state machines during an execution of an operation, ~~the at least one~~~~each~~ state machine representing a current state of execution of a step in the execution of a system resource operation wherein a state machine is comprised of state information including control and data values representing a state of operation of the control/processing sub-system ~~at a given time~~during execution of the corresponding step in the execution of the system resource operation, and

a state machine log for storing the state machine information, wherein the state machine log generator is responsive to the restoration of operation of the system resource after a failure of system resource operations for reading the state machine information from the state machine log and restoring the state of execution of a system resource operation wherein

the control/processing sub-system is a state machine system defined during the execution of an operation by ~~at least one sequential~~a sequence of state machines defined by ~~a~~corresponding states of operation of the state machine system during a step in the execution ~~fo~~of the operation, and wherein

a file transaction operation is represented by ~~at least one sequential~~a sequence of state machines wherein each state machine is defined by data and control values residing in the state machine system during existence of the corresponding state machine of the sequence of state machines.

10. (PREVIOUSLY AMENDED) The state machine logging mechanism of claim 9, further comprising:

a state machine log mirroring mechanism that is functionally integral with the state machine log and operating concurrently and in parallel with the state machine log and that is located separately from the control/processing sub-system and communicating with the state machine log generator for receiving and storing mirror copies of the state machine information, wherein the state machine log mirroring mechanism is responsive to the restoration of operation of the system resource after a failure of system resource operations for reading the mirror copies of the state machine information from the state machine log mirroring mechanism and restoring the state of execution of a system resource operation.

11. (CURRENTLY AMENDED) A state machine logging mechanism for use in a system resource performing system resource operations in response to system resource requests by the clients, the system resource including a system resource sub-system and first and second control/processing sub-systems, each including a system processor performing system resource operations in response to client requests directed to the first and second control/processing sub-systems and controlling operations of the system resource sub-system, the state machine logging mechanism comprising:

in each control/processor sub-system,

a state machine log generator for extracting state machine information defining ~~at least one~~a sequence of states machine during an execution of an operation, ~~the at least one~~each state machine representing a ~~current~~state of execution of a step in the execution of a system resource operation of the corresponding control/processing sub-system wherein a state machine is comprised of state information including control and data values representing a state of operation of the control/processing sub-system ~~at a given time~~during execution of the corresponding step in the execution of an operation, and

a state machine log operating concurrently [[in]] and cooperatively with the ◆•
corresponding control/processing sub-system for storing the state machine information
of the corresponding control/processing sub-system, wherein the state machine log
generator is responsive to the restoration of operation of the system resource after a
failure of the corresponding control/processing sub-system for reading the state
machine information from the corresponding state machine log and restoring the state
of execution of a system resource operation of the corresponding control/processing
sub-system, wherein

each control/processing sub-system is a state machine system defined
during the execution of an operation by at least one sequentiala sequence of state ◆•
machines defined by a state of operation of the state machine system during a step in ◆•
the execution foof the operation, and wherein ◆•

a file transaction operation is represented by at least one sequentiala ◆•
sequence of states machine wherein each state machine is defined by data and control ◆•
values residing in the state machine system during existence of the state machine of ◆•
the sequence of state machines. ◆•

12. (PREVIOUSLY AMENDED) The state machine logging mechanism of
claim 11, further comprising:

in each control/processor sub-system,

a state machine log mirroring mechanism that is functionally integral with
the state machine log and that operates concurrently and in parallel with the state
machine log and that is located separately from the state machine log mechanism and
that is communicating with the state machine log generator of the other
control/processing sub-system for receiving and storing mirror copies of the state
machine information of the other control/processing sub-system, wherein the state
machine log mirroring mechanism is responsive to the restoration of operation of the
other control/processing sub-system after a failure of the other control/processing sub-
system for reading the mirror copies of the state machine information from the state
machine log mirroring mechanism to the other control/processing sub-system and
restoring the state of execution of a system resource operation of the other
control/processing sub-system.

13. (CURRENTLY AMENDED) In a system resource performing system
resource operations in response to requests by the clients, the system resource

including a system resource sub-system and a control/processing sub-system including a resource control processor performing system resource operations in response to client requests and controlling operations of the system resource sub-system and including a state machine logging mechanism, a method for logging and restoring the state of execution of system resource operations, comprising the steps of:

during each system resource operation,

extracting state machine information defining ~~at least one~~a sequence of state machines during an execution of an operation, ~~the at least one~~each state machine representing a current state of execution of a corresponding step in an execution of a system resource operation wherein a state machine is comprised of state information including control and data values representing a state of operation of the control/processing sub-system ~~at a given time~~during the corresponding step in the execution of the system resource operation, and

storing the state machine information, and

upon restoration of operation of the system resource after a failure of system resource operations,

reading the state machine information from the state machine log and restoring the state of execution of a system resource operation, wherein

the control/processing sub-system is a state machine system defined during the execution of an operation by ~~at least one sequential~~a sequence of state machines defined by ~~a~~states of operation of the state machine system during a~~corresponding~~ steps in the execution ~~fo~~of the operation, and wherein

a file transaction operation is represented by at least one sequential state machine wherein each state machine is defined by data and control values residing in the state machine system during existence of state machine of the sequence.

14. (ORIGINAL) The method for logging and restoring the state of execution of system resource operations of claim 13, further comprising the steps of:

during each system resource operation,

storing mirror copies of the state machine information separately from the control/processing sub-system, and

upon restoration of operation of the system resource after a failure of system resource operations,

reading the mirror copies of the state machine information and restoring the state of execution of a system resource operation.

15. (CURRENTLY AMENDED) In a system resource performing system resource operations in response to system resource requests by the clients, the system resource including a system resource sub-system and first and second control/processing sub-systems, each including a system processor performing system resource operations in response to client requests directed to the first and second control/processing sub-systems and controlling operations of the system resource sub-system, a method for logging and restoring the state of execution of system resource operations, comprising the steps of:

in each control/processor sub-system,

during each system resource operation,

extracting state machine information defining ~~at least one~~a sequence of state machines during an execution of an operation, ~~the at least one~~each state machine representing a current state of execution of a step in an execution of a system resource operation of the corresponding control/processing sub-system wherein a state machine is comprised of state information including control and data values representing a state of operation of the control/processing sub-system ~~at a given time~~during a corresponding step in the execution of the system resource operation, and

storing the state machine information of the corresponding control/processing sub-system, and

upon restoration of operation of the system resource after a failure of the corresponding control/processing sub-system,

reading the state machine information and restoring the state of execution of a system resource operation of the corresponding control/processing sub-system, wherein

each control/processing sub-system is a state machine system defined during the execution of an operation by ~~at least one sequential~~a sequence of state machines defined by ~~a~~corresponding states of operation of the state machine system during ~~a~~corresponding steps in the execution ~~fo~~of the operation, and wherein

a file transaction operation is represented by ~~at least one sequential~~a sequence of state machines wherein each state machine is defined by data and control

values residing in the state machine system during existence of a state machine of the

sequence of state machines.

16. (ORIGINAL) The method for logging and restoring the state of execution of system resource operations of claim 15, further comprising the steps of:

in each control/processing sub-system,

during each system resource operation of the other control/processing sub-system,

receiving and storing mirror copies of the state machine information of the other control/processing sub-system, and

upon restoration of operation of the other control/processing sub-system after a failure of the other control/processing sub-system,

reading the state machine information from the state machine log mirroring mechanism to the other control/processing sub-system and restoring the state of execution of a system resource operation of the other control/processing sub-system.